USC School of Architecture

ARCH 526: PROFESSIONAL PRACTICE:
LEGAL AND ECONOMIC CONTEXT, PROJECT DOCUMENTATION (3.0 UNITS)
Design methodology, typology programming, site analysis, budget formulation and pro-forma procedures. Office management, emphasizing professional service and professional ethics as well as project management focusing on the architect's responsibilities during construction.

Semester: Fall 2022
Wednesdays, 10:00 am - 11:50 am, ZOOM
 and Fridays, 10:00 am-11:50 am, THH 202

Instructor: Michael Hricak and Karen Kensek
Office Hours: send email to schedule an appointment
Contact Info: hricak@me.com and kensek@usc.edu (we will try to respond to emails within 24 hours Monday-Friday or on the Monday following a weekend or holiday break)

Class Assistants, Office Hours, Contact Info
TBA on Blackboard after hiring them
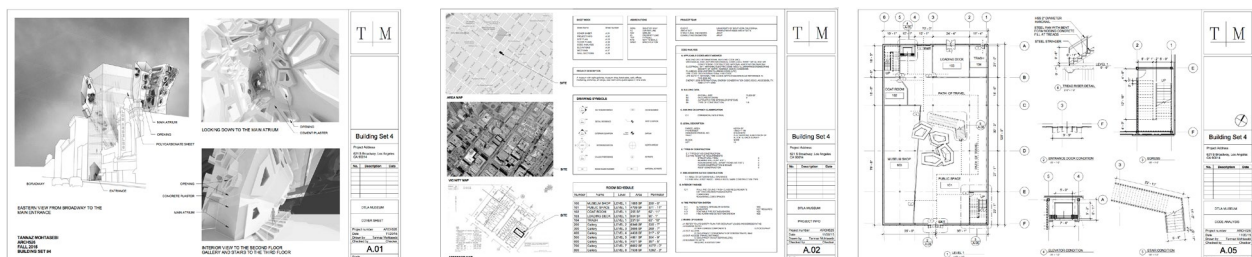
IT Help: Dipak Shirke
Contact Info: dshirke@usc.edu

Prerequisite(s): ARCH-500a or ARCH-605b.
Co-Requisite(s): None
Concurrent Enrollment: None
Recommended Preparation: Working knowledge of Revit and Rhino
Required: Revit 2023 (yes, this version), BIM 360 (an account will be set up for you), Rhino

Tannaz Mohtasebi (Fall 2015 – partial comprehensive building drawing set)

Course Description

The goal of this course is to provide an opportunity to demonstrate the student's ability to comprehensively describe an architectural project by making a series of informed design decisions across scales and disciplines and memorializing these choices in an integrated collection of drawings, documents, instructions, and data sets.

The course explores the manner by which architects create and convey information. Design intent is shared using graphic and text technical information and other means of communication. Data collection and transfer is emphasized through various documentation systems. The student will prepare basic documents necessary for an understanding of the design intent by other design, engineering, legal, financial, and construction professionals.

The course includes an introduction to the underlying laws and regulations that affect the practice of architecture as they relate to the overall design process including the creation of construction related documents. The course introduces and explains the role of those authorities having jurisdiction (AHJ) over the project; the review, approval, and permit process; the influence of peripheral regulatory agencies; along with the effect of codes that govern planning, zoning, and building.

The "anatomy" of standard construction information is presented through an overall review of project documentation, detailing, specifications, document formats, and project organization. The course includes a lab portion to demonstrate comprehensive, fully coordinated, and dynamic construction documents via several platforms of building information modeling (BIM) and other pertinent software. Other topics in the class include the importence of collaboration, professionals' legal responsibilities, the selection of building materials and assemblies, types and various uses of financial models, considerations of budgets, project leadership, the role of ethics in making design decisions and in professional behavior, and project and practice management.

To effectively communicate their intentions architects must understand the various stakeholders' roles, concerns, agendas and responsibilities. These include the client(s), the users and occupants, project consultants (e.g. structural, MEP, energy, etc.), contractors, sub-contractors, fabricators, suppliers, government officials (e.g. inspections and code compliance), attorneys, and other professionals involved in the process. Communication thus becomes not a static list of one-time deliverables, but an on-going process – requiring consistent information management and coordination by the architect.

The course introduces students to the foundational principle that credibility is at the heart of leadership. Teaching students to value and create a culture of credibility is the overarching course objective.

Learning Objectives

Please see the accreditation statement at the end of the syllabus.

By the end of this course, students will be able to
1. Understand the workings of a construction project, the related areas of responsibility and the roles played by the various participants, using AIA Document A201 – 2017 "General Conditions of the Contract for Construction" as a guide.
2. Navigate the documentation and construction process within a contractual environment.
3. Model a building in Revit, transfer data from Rhino to Revit, and generate construction documents and drawings using professional design and construction industry standards.
4. Understand current building information modeling (BIM) technologies.
5. Credibly present their work using clear, precise, and actionable information.

Communication

Communication and collaboration are essential for design professionals working on any project. Therefore, we want you to feel comfortable asking questions and giving feedback on this course just as we, and your classmates, will be providing you with feedback on your assignments. If you have questions or comments, please speak to us directly after class or email us.

Technological Proficiency and Hardware/Software Required

Software Required: Download Autodesk Revit 2023 from http://students.autodesk.com. The software is also available on the school and campus computers. Students should also download Navisworks and optionally, a free trial version of Enscape, which works both with Revit and Rhino. You will also need to be able to run Zoom and BIM 360 on your computer. In addition, Rhino with Grasshopper and Dynamo in Revit will be used for one assignment. Verify that these work on your computer; there were some problems last semester with Dynamo being incompatible with some laptops' graphic cards. You can check out a laptop from USC if your computer is temporarily not working. https://itservices.usc.edu/spaces/laptoploaner/ Rhino will be available for supplied by the School of Architecture for free. We will be using Blackboard as a method of distributing class information and receiving your assignments. Please make sure that you know how to download and upload files.

Not Revit: Please note that this is not a Revit class, but includes some lectures on Revit and includes other topics dealing with building information modeling (BIM). You will be introduced to some of the commands and create a Revit 3d model, but if you wish to learn a lot about Revit specifically, please take a class that focuses more on it. If you are completely new to Revit, you will need to spend additional time catching up. BIM 360 will be used for team coordination. We will be using Revit 2023. Please download that version.

Required Materials

There are **three** required text books in the class. Please buy all of them if you do not already own them. There are two other links to required readings that you should download.

Perkins, Bradford (editor), American Institute of Architects, **The Architecture Student's Handbook of Professional Practice (ASHPP)**, Fifteenth Edition, John Wiley & Sons, copyright 2016. ISBN 9781118738979 (for reference)

Ching, Francis D. K. and Winkel, Steven R., **Building Codes Illustrated: A Guide to Understanding the 2018 International Building Code** (for reference)

Kensek, Karen, **Building Information Modeling**, Routledge, copyright 2014. (read this book by Week 5 of the semester)

A201- 2017 General Conditions of the Contract for Construction
http://content.aia.org/sites/default/files/2017-04/A201_2017%20sample%20%28002%29.pdf

Effective Use of the IBC/CBC, pages vii through xvi.
http://www.ecodes.biz/ecodes_support/free_resources/2013California/13Building/PDFs/Effective%20Use%20of%20the%20IBC_CBC.pdf
OR
http://www.bsc.ca.gov/codes.aspx, Choose….2013 Triennial Edition, Part 2 California Building Code, Building Volume 1 "Effective Use of the IBC/CBC"

Optional Materials

Books and articles

Ching, Francis D. K. and Winkel, Steven R., **Building Construction Illustrated 6th Edition**

AIA Draft Documents for Review and Comment: E203™–2012, Building Information Modeling and Digital Data Exhibit; G201™–2012 Project Digital Data Protocol Form; and G202™–2012 Building Information Modeling Protocol Form.

Allen, Stan and Agrest, Diana, architecture, technique, and representation, G+B Arts International, copyright 2000

Nordenson**, G., Reading Structures: 39 Projects and Built Works,** Lars Muller Publishers, Copyright 2016

Lewis, P.; Tsurumaki, M.; Lewis, D.J. **Manual of Section**, Princeton Architectural Press, Copyright 2016

NCARB Mongraphs - Heating and Cooling Design for Buildings

Wakita, Bakhoum, and Linde**, The Professional Practice of Architectural Working Drawings 4th edition**

Useful information for becoming a licensed architect in California:

Architecture Licensure Handbook
https://www.cab.ca.gov/docs/publications/architect_licensure_handbook.pdf#pagemode=bookmarks

Prepare for ARE 5.0 https://www.ncarb.org/pass-the-are/prepare

ARE 5.0 Handbook https://www.ncarb.org/sites/default/files/ARE5-Handbook.pdf

California Supplement Exam (CSE) https://www.cab.ca.gov/candidates/cse/

Teaching videos

LinkedIn Learning (was previously Lynda), accessible from Blackboard (search on Revit, Rhino, Grasshopper, BIM 360, and Dynamo)

revitcourse.com

YouTube content

Description and Assessment of Assignments

The assignments build towards the final project, the Comprehensive Building Design Set (CBDS). **Please read through the entirety of these three files.** They are on Blackboard under Content.Pay special attention to deadlines and exact submission requirements.

1. **Fa22 Arch 526 syllabus student.pdf** (this file that you are currently reading)
2. **Fa22 Arch 526 CBDS – HWK sheets.pdf**
3. **Fa22 notes for hwk1 and hwk2.pdf**

> **Late work will not be accepted; turn in what you have ON-TIME, before the beginning of Friday class at 10 am PT. It is better to turn something in for partial credit than receive a zero.**

It is critical that you finish by the deadlines that have been set. Each assignment builds on the next. Usually you will be turning in a paper-based assignment and a file on Blackboard. Students are strongly encouraged to come by with work in progress for suggestions before the work is due and come by after grading to learn how they could improve in the future. Please read the assignments carefully – some are done as individuals and others as team assignments. Assignments vary – check the individual assignment descriptions as to what you turn in and whether or not you additionally turn it in on Blackboard. There are **no make-ups** on assignments or quizzes. You should always turn in what you have for partial credit. As the semester progresses, there might be changes to the assignments if we determine that other topics need to be covered.

Assignments

The assignments build on each other providing techniques for creating a set of drawings (CBDS – the comprehensive building design set) by the end of the semester. Your comprehensive building design from spring semester studio will be used to create a set of drawings documenting your building. Many of the assignments (homeworks 4 – 10 and the final project) will be done in teams of two using your (or your teammate's) previous semester's studio project. The instructors reserve the right to require additional assignments, in-class exercises, and pop quizzes if necessary.

Carefully read the handout **Fa22 Arch526 CBDS - HWK sheets.pdf** as it has all the details about the assignments. Always turn in what you have on time for grading. **Fa22 notes for hwk1 and hwk2.pdf** has hints for completing the first two assignments.

Academic Integrity

Unless otherwise specified, you are expected to complete all the work yourself. Copying other people's work or downloading digital files will result in a zero on the assignment and disciplinary action.

Grading

Graduate students generally need an average of B- to pass. As this is a required course, you need to pass Arch 526 to graduate. Students failing the course will need to take it again the next fall semester. If at any time you feel that you are doing poorly in the class, you should set a time to speak to the instructor on how to improve future work. Late assignments will not be accepted. "Bonus" work will not be given. Assignments or quizzes cannot be redone. If asked, will give you advice on how to improve in future assignments. Grades will be recorded in the Blackboard gradebook. It is important to meet with the class assistants soon after grades are posted for individual feedback as the assignments generally will not be turned back to you. The instructors are also available to give feedback. Email to schedule a time to meet.

Description	% of Total Grade
Assignments: Different assignments have different values depending on difficulty. Assignments 3 – 10 and the Final Project are done as a team project.	60
Quizzes: There will be five quizzes throughout the semester. They will be announced the week prior.	15
Final Project - CBDS	15
Other: in-class exercises; out-of-class required meetings, participation; questions on readings. These points will be redistributed to the assignments or quizzes or final project if not all are used here.	10
Total	**100**

Attendance

The University of Southern California recognizes the diversity of our community and the potential for conflicts involving academic activities and personal religious observation. The University provides a guide to such observances for reference and suggests that any concerns about lack of attendance or inability to participate fully in the course activity be fully aired at the start of the term. As a general principle, students should be excused from class for these events if properly documented and if provisions can be made to accommodate the absence and make up the lost work. Constraints on participation that conflict with adequate participation in the course and cannot be resolved to the satisfaction of the faculty and the student need to be identified prior to the drop/add date for registration. After the drop/add date the University and the School of Architecture shall be the sole arbiter of what constitutes appropriate attendance and participation in a given course.

Please contact Karen Kensek at kensek@usc.edu by the end of the second week of class if you anticipate conflicts with religious holidays including missing lectures, inability to finish homework assignments on-time, or other items that may hinder your work in this class.

Classroom Norms

Sharing our work with others and opening ourselves to critique (or peer feedback) can be a vulnerable process. To model the expectations of a professional work environment in our field, and promote a respectful classroom environment, we agree to the following.
- Do not interrupt when someone else is speaking
- Critique design work, not people
- Support critique with evidence, or speak from personal experience
- Allow everyone to critique (i.e., don't dominate or remain silent)
- Keep a positive tone when offering critique and responding to it
- Accept critique in the positive spirit with which it is given as a means of development
- When Zooming, have an appropriate background, preferably an image of you for non-video and a background image for you to use in video mode.

Course Evaluation

Student feedback is essential to making this course the best it can be. Students will have an opportunity to submit comments on the mid-semester evaluation and the standard USC course evaluation survey at the end of the semester. Feel free to bring concerns directly to the instructors if there are problems.

Assignments are due as digital files uploaded to Blackboard before the start of class on Fridays. If there are printouts, they are also due then unless otherwise indicated. As previously mentioned, late assignments are not accepted in the class. Please turn in whatever you have when it is due.

Detailed Course Schedule

	Wednesday, ZOOM 10 am – 11:50 am PT Use your own computer to work along with the instructor Read the entire Routledge book by Week 5. The other required books are for reference.	Friday, THH 202 10 am – 11:50 am PT **Assignments Due – Fridays, 10 am PT on Blackboard and printouts in class if required**
Week 1 Aug. 24 Aug. 26	**Lecture Topic:** Introduction to Arch 526 Overview of CBDS, assignments, grading, software required, BIM, required software **BIM Topics:** Revit Basics **KK**	**Lecture Topic:** Beliefs & Behaviors vs. Technology & Techniques: How Collaboration Works (or Doesn't Work) **Workshop:** Anatomy of Documents and Recipe for a Site Plan. **MH**
Week 2 Aug. 31 Sept. 2	**BIM Topics:** Interoperability **KK**	**HWK 1 DUE** **Lecture Topic:** What Architects Do: An Introduction to the Workings of the Construction Industry and the Anatomy of a Project. **Workshop:** Access and Egress: Safety and Accomodation **MH**
Week 3 Sept. 7, Sept. 9	**BIM Topics:** Rhino to Revit using Grasshopper, Excel, and Dynamo **KK**	**HWK 2 DUE** **Lecture Topic:** Visual Explanations and Data Sets: Reinforcing Design Intent with Actionable Information. **Workshop:** The Art and Science of Dimensions and Measurement **MH**
Week 4 Sept. 14 Sept. 16	**BIM Topic:** Rhino to Revit using RhinoInside and Conveyor **KK + GUEST**	**HWK 3 DUE** **BIM Lecture Topic:** Rhino to Revit Stadium Example **KK + GUEST (ZOOM?)**
FINISH READING THE ROUTLEDGE BOOK **WATCH THESE VIDEOS BEFORE WEEK 5's WEDNESDAY CLASS, SEPT 21**		

BIM 360 Basics (1 minute)
https://www.youtube.com/channel/UCv4RtbdnRrKmeZLqI6Yt3Bw

BIM 360 Basics: Uploading Revit Models for Collaboration (11 minutes)
https://bim360basics.com/2019/06/03/uploading-revit-models-to-bim-360-design-for-collaboration/

BIM 360 Basics: Worksharing (2.5 minutes)
https://www.youtube.com/watch?v=Sw8Eld3yL8U

BIM 360 Basics: Inviting Members to Your BIM 360 Project (4 minutes)
https://bim360basics.com/2019/05/13/inviting-members-to-your-project/

BIM 360 Bacis: Just Synched with Central – Where are My Changes? (11 minutes)
https://bim360basics.com/2019/05/07/i-just-synced-with-central-where-are-my-changes/

Week 5 Sept. 21 Sept. 23	**BIM Topic:** Using BIM 360 **Revit Topics:** More Viewing Commands KK	**Working on HWK 4** **Lecture Topic:** Measuring What Matters: How Understanding the Design is Essential for its Success. **Workshop:** The Interrelatedness of documents, drawings and details: Scaling Up and Down MH
Week 6 Sept. 28 Sept. 30	**Revit Topic:** Introduction to Revit Structure TJ Tutay AEC ITITAN handout on Blackboard KK	**HWK 4 DUE** **Lecture Topic:** The Architect's Core Competency: How Data Becomes Information and Transformed by Knowledge **Workshop:** Using Plans to Tell Your Story. MH
Week 7 Oct. 5 Oct. 7	**Revit Topic: Introduction to Revit Systems** TJ Tutay AEC ITITAN handout on Blackboard KK	**HWK 5 DUE** **Lecture Topic:** Financial Sustainability: Achieving Practice and Project Success **Workshop:** Enclosures MH
Week 8 Oct. 12 Oct. 14	**Lecture Topic: TBA** MH	**FALL RECESS**
Week 9 Oct. 19 Oct. 21	**BIM Topic:** use of "I" in BIM **Revit Topic:** Schedules KK + GUEST	**HWK 6 DUE** **Lecture Topic:** Project Management vs. Construction Management: Roles and Responsibilities **Workshop:** Useful Information Available to Explain Design Intentions **Have students signup for next week's in class plan check.** MH

Week 10 Oct. 26 Oct. 28	**Lecture Topic:** Fundamentals of Building Costs, Acquisition, project financing and funding, financial feasibility, operational costs, and construction estimating with an emphasis on life-cycle cost accounting. **Workshop:** Schedules. Preliminary Cost Estimate. Sample Material Specification. **MH + GUEST**	**HWK 7 DUE** **Student Plan Check In-Class Exercise** Make two copies; turn in to Michael and the team whose project you are reviewing. Graded. **MH**
Week 11 Nov. 2 Nov. 4	**Lecture Topic:** ADA History Requirements Summary **KK + GUEST**	**HWK 8 DUE** **Lecture Topic:** Ethics and Design Decisions: Professional Accountability and Project Performance **Workshop:** How Commercial Plan Check Works: In introduction to Peripheral Agencies, Departments and Divisions. **Have students sign up for in class review on Week 13.** **MH**
Week 12 Nov. 9 Nov. 11	**BIM Topic:** Tools for Sustainable Design **KK**	**HWK 9 DUE** **Lecture Topic:** Determining Project Performance: Simple Measures Yield Useful Lessons **Workshop:** In-class exercise; turn in at end of class. Graded. **MH + KK**
Week 13 Nov. 16 Nov. 18	**HWK 10 DUE BRING PLOTS** **START FINAL PROJECT** **Individual Plan Check** In-class review by Prof. Hricak of student team plots. Graded. **MH**	**BRING PLOTS** **START FINAL PROJECT** **Individual Plan Check** In-class review by Prof. Hricak of student team plots. Graded. **MH**
Week 14 No classes Nov. 23, 25	**Thanksgiving Recess**	**Thanksgiving Recess**
Week 15 Nov. 30 Dec. 2	**BIM Topic:** Other Uses **KK + GUEST/S**	**Lecture Topic:** Service Leadership: How Credibility and Collaboration Result in Success Course Conclusion **Final Project:** Comprehensive Building Design Set **MH + KK**
CBDS FINAL **Dec. 12, 8 am**	**Monday, December 12, 8 am – 10 am, CBDS Final Version due at 8 am**	

Course Expenses

The instructors estimate that the cost for books and materials in this course is under $200 especially since you probably own some of the required books already.

Accreditation Statement

ACCREDITATION STATEMENT

The USC School of Architecture's five-year Bachelor of Architecture Program and Master of Architecture Program are accredited by the National Architecture Accreditation Board (NAAB). Conditions for accreditation can be found at: https://www.naab.org/wp-content/uploads/2020-NAAB-Conditions-for-Accreditation.pdf.

Course Responsibilities: As a required course for an accredited professional degree program, this course is accountable for achieving learning outcomes associated with the NAAB Criteria.

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
engemannshc.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call
engemannshc.usc.edu/rsvp
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086
equity.usc.edu, titleix.usc.edu
Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421
studentaffairs.usc.edu/bias-assessment-response-support
Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu
Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710
studentaffairs.usc.edu/ssa
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101
diversity.usc.edu
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.